

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF NORTH CAROLINA
Civil Action No.: 7:23-CV-00897**

IN RE:)	
)	
CAMP LEJEUNE WATER LITIGATION)	PLAINTIFFS' MEMORANDUM IN
)	OPPOSITION TO DEFENDANT'S
This Pleading Relates to:)	MOTION TO EXCLUDE THE
)	OPINION TESTIMONY OF R.
ALL CASES.)	JEFFREY DAVIS AND NORMAN L.
)	JONES, PH.D
)	

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I. INTRODUCTION

Pursuant to Local Rules 7.1(f) and 7.2, Plaintiffs' Leadership Group (PLG) submits this response in opposition to the Government's Motion to Exclude Opinion Testimony of Mr. R. Jeffrey Davis and Dr. Norman L. Jones. DE-356. The Government has brought a motion under *Daubert* and Fed. R. Evid. 702 with no argument concerning the experts' qualifications, the relevance of their testimony, or the reliability of a post-audit analysis. Instead, the Government seeks to discredit expert conclusions not by truly challenging the methodology used, but by imposing an inapplicable standard of document review that ignores the basis of Dr. Jones and Mr. Davis's opinions and the empirical nature of the work. The Government's criticisms go to the weight of Dr. Jones and Mr. Davis's testimony, not its admissibility, and the Court should deny the motion.

II. STATEMENT OF RELEVANT FACTS

Following the selection of twenty-five Track 1 plaintiffs for trial, the Court entered scheduling orders for expert discovery and motion practice across three phases: (1) Water Contamination (Phase 1); (2) general causation (Phase 2); and (3) specific causation, damages, and residual issues (Phase 3). DE-270; DE-312. Phase 1 is dedicated to establishing the contaminant concentration levels in finished water at Camp Lejeune from 1953 to 1987, which the parties agree involves presenting evidence on "the contamination sources, the fate and transport of the contaminants within the groundwater underlying Camp Lejeune, the supply of water through wells to the various treatment plants at Camp Lejeune, and the distribution of the water from the treatment plants to relevant areas of Camp Lejeune during this time frame." DE-329.

To establish the contaminant concentration levels in finished water at Camp Lejeune from 1953 to 1987, the PLG is relying on the groundwater flow and contaminant fate and transport

models developed by the Agency for Toxic Substances and Disease Registry (ATSDR) to simulate monthly mean contaminant concentration levels in water delivered to the Tarawa Terrace, Hadnot Point, and Holcomb Boulevard areas of the base. In support of these models, and to rebut criticisms raised by the Government's experts, the PLG disclosed six experts in the fields of engineering, hydrogeology, mathematical modeling, and physiochemical processes.¹ Dr. Jones and Mr. Davis were retained to perform a post-audit goodness-of-fit assessment of ATSDR's groundwater flow and contaminant transport model for Tarawa Terrace using site remediation data collected after ATSDR built its model. DOJ Ex. 3, Jones and Davis Report (DE-357-4) at 1-1-1-2; DOJ Ex. 4, Jones and Davis Rebuttal Report (DE-357-5) at 2-1; DOJ Ex. 5, Jones Dep. (DE-357-6) at 113:10-15. This involved extending ATSDR's MODFLOW and MT3DMS models for Tarawa Terrace from 1995 to 2008 and comparing the outputs to actual PCE concentrations observed at monitoring wells during that period. DOJ Ex. 3, Jones and Davis Report (DE-357-4) at vi.

A post-audit tests a model's accuracy.² It is a technical exercise and a technique used by modelers to quantitatively and qualitatively assess the degree of correspondence between a model's simulated values and observation data.³ It is an optional step in what is considered a standard protocol for developing and applying groundwater flow and contaminant fate and

¹ The PLG's experts for Phase 1 are Morris Maslia, P.E.; Mustafa Aral, Ph.D.; Norman Jones, Ph.D.; R. Jeffrey Davis, P.E.; Leonard Konikow, Ph.D.; and David Sabatini, Ph.D.

² Ex. 1, Excerpt from Hill and Tiedman, Effective Groundwater Model Calibration (2007), at 262.

³ Ex. 1, Excerpt from Hill and Tiedman, Effective Groundwater Model Calibration (2007), at 338 ("Model accuracy can be evaluated by comparing simulated predictions with existing data intentionally omitted from model calibration or new data. . . Tests against new data are sometimes called postaudits."); Ex. 2, ASTM International D5490-93: Standard Guide for Comparing Ground-Water Flow Model Simulations to Site-Specific Information (2002), at 1.

transport models.⁴ The “degree of correspondence” between simulated and observed values reflects model accuracy and it is assessed visually through graphs and by calculating summary statistics such as the mean absolute error.⁵

Consistent with industry practice and guidelines on evaluating models,⁶ Dr. Jones and Mr. Davis’s methodology for the post-audit of the Tarawa Terrace model consisted of:

- Reviewing pertinent Tarawa Terrace chapter reports;
- Converting ATSDR’s original MODFLOW and MT3DMS models to newer versions (MODFLOW 2000 and MT3DMS v5.3);
- Extending the original model’s simulation period from 1995 to 2008 by incorporating updated rainfall-recharge data from nearby weather stations and remediation well pumping rates;
- Quantitatively evaluating the original model’s accuracy using summary statistics (mean error and mean absolute error), scatter plots, and time series plots of simulated versus observed PCE concentrations; and

⁴ See Ex. 3, Excerpt from Anderson and Woessner, *Applied Groundwater Modeling: Simulation of Flow and Advective Transport* (2015), at CL_PLG-EXPERT_ARAL_0000000077, CL_PLG-EXPERT_ARAL_0000000083-86; Ex. 4, Anderson, *The Role of The Postaudit in Model Validation*, *Advances in Water Resources* 15 (1992) 167-173, at 168; Ex. 5, ASTM International D5447-17: *Standard Guide for Application of a Groundwater Flow Model to a Site-Specific Problem* (2017), at 2.

⁵ Ex. 6, Reilly and Harbaugh, *Guidelines for Evaluating Ground-Water Flow Models*, U.S. Geological Survey, *Scientific Investigations Report 2004-5038* (2004), at 23 (“There are different quantitative measures that investigators use to show the accuracy of the calibration of a ground-water flow model. Some of these are: the mean error, the mean absolute error, and the root mean squared error.”) (citation omitted); Ex. 2, ASTM International D5490-93: *Standard Guide for Comparing Ground-Water Flow Model Simulations to Site-Specific Information* (2002), at 2 (“Quantitative and qualitative comparisons are both essential. Both should be used to evaluate the degree of correspondence between a ground-water flow model simulation and site-specific information.”).

⁶ See, e.g., Ex. 2, ASTM International D5490-93: *Standard Guide for Comparing Ground-Water Flow Model Simulations to Site-Specific Information* (2002).

- Qualitatively assessing the spatial distribution and migration of the PCE plume across model layers and at monitoring wells.

DOJ Ex. 5, Jones Dep. (DE-357-6) at 85:2-10, 87:18-88:24; DOJ Ex. 3, Jones and Davis Report (DE-357-4) at 2-1, 3-1 to 3-2, 4-1 to 4-2, 5-1 to 5-4; Ex. 7, Jones & Davis Rainfall Imputation Addendum.

Dr. Jones and Mr. Davis's opening report details each step of their post-audit analysis, identifies the underlying data and model input files used (i.e., ATSDR's calibrated model input files), and explains in detail how the residual errors and scatter plots were calculated and what they show in terms of the original model's ability to simulate PCE concentrations in monitoring wells. DOJ Ex. 3, Jones and Davis Report (DE-357-4); Ex. 8, Jones and Davis Revised Materials Considered List. Dr. Jones and Mr. Davis also produced their native post-audit model files, allowing the Government's experts to reproduce and test their work, which they did. DOJ Ex. 4, Jones and Davis Rebuttal Report (DE-357-5) at 3-10 to 3-13; Ex. 9, Nov. 5, 2024 PLG Expert Files Production Letter.

As is evident from their reports,⁷ Dr. Jones and Mr. Davis were hired to conduct a post-audit – not to provide an opinion of ATSDR's work based on a review of the chapter reports. Their role in this case is to offer testimony on the post-audit, including what the post-audit results convey

⁷ Dr. Jones and Mr. Davis's rebuttal report explains their role in this litigation:

In 2024, we were tasked with performing a post-audit of the Tarawa Terrace flow and transport models. The objective of the post-audit was to extend the range of the groundwater flow and transport models from 1995 to 2008 and compare the output of the transport model with concentrations sampled at monitoring wells in Tarawa Terrace during the 1995–2008 period to assess the performance of the model as an interpretive and predictive tool. This comparison involved both a quantitative analysis of simulated versus observed concentrations and a qualitative analysis of the shape and migration of the simulated PCE plume over that period.

DOJ Ex. 4, Jones and Davis Rebuttal Report (DE-357-5) at 2-1.

about how reliable the underlying ATSDR flow and transport model is.⁸ PLG's other experts, including Morris Maslia and Dr. Leonard Konikow, reviewed all chapter reports and are prepared to offer opinions on them. Dr. Jones explained in deposition that, following a high-level review of all nine chapters, they focused on the chapters that were necessary and appropriate to perform the post-audit:

. . . Chapter A is kind of a comprehensive summary, as I understand it, of all of the work that was done, including what was put in those other chapters. And so felt like I had a reasonably good exposure to the overall methods and processes that were used and then described in more detail in those chapters.

But for the purpose of the post-audit which we were hired to do, certainly the most important chapters would be A, C, and F.

Q. Why are A, C, and F the most important chapters for the post-audit you were hired to do?

A. Because A is a -- is a comprehensive summary, a detailed summary of the entire modeling project. It was very helpful in getting an overview of all of the work that was done

Chapter C provided a very detailed description of the construction and calibration of the MODFLOW flow model.

And Chapter F was a very detailed description of the construction and calibration, uncertainty analysis associated with the contaminant transport model.

And we were asked to, in -- in conducting the post-audit, to -- to perform simulations using both the flow and transport model. So they were clearly the most relevant chapters for our work.

DOJ Ex. 5, Jones Dep. (DE-357-6) at 87:18-88:24. *See also, id.* at 86:6-10, 89:2-6, 90:16-20.

⁸ DOJ Ex. 3, Jones and Davis Report (DE-357-4) at vi ("The audit extends the original model's simulation period from 1995 to 2008 and assesses the accuracy of its predictions by comparing simulated PCE concentrations to actual concentrations measured at monitoring wells during this extended period.").

The first, Chapter A, is a comprehensive, 100-page discussion of ATSDR's historical reconstruction analysis for Tarawa Terrace. Ex. 10, ATSDR Tarawa Terrace Report Chapter A. It includes:

- The models used and the data and sequence in which the data were applied to each model. *Id.* at A12-A14.
- The model calibration process and results of related statistical analyses. *Id.* at A22-A26.
- The calibrated model parameters and their values. *Id.* at 29.
- Simulation results and results of related statistical analyses. *Id.* at A32-A39
- Degradation by-product analysis and results. *Id.* at A41-A46.
- Details and results of sensitivity analyses, probabilistic analyses, and tracer study. *Id.* at A47-67.

Chapters C and F are the chapters dedicated to the ATSDR's methodology for developing and applying its groundwater flow (MODFLOW, Chapter C) and PCE fate and transport (MT3DMS, Chapter F) models – which is the sole focus of Dr. Jones and Mr. Davis's post-audit.⁹ DOJ Ex. 3, Jones and Davis Report (DE-357-4) at vi (“This post-audit report evaluates the performance of groundwater flow and transport models developed for the Tarawa Terrace region of Camp Lejeune by the Agency for Toxic Substances and Disease Registry (ATSDR).”). The remaining chapters address elements of the ATSDR's study that either did not concern the models evaluated in the post-audit (e.g., Chapter G on the development of TechFlowMP for degradation by-products) or were sufficiently covered in Chapter A. DOJ Ex. 5, Jones Dep. (DE-357-6) at 87:18-25.

Based on the results of the post-audit, their experience and expertise in the fields of hydrogeology and groundwater modeling, and their review of pertinent ATSDR chapter reports, Dr. Jones and Mr. Davis are prepared to offer the opinions stated in their report: (1) that the Tarawa

⁹ See generally Ex. 11, ATSDR Tarawa Terrace Report Chapter C: Simulation of Groundwater Flow; Ex. 12, ATSDR Tarawa Terrace Report Chapter F: Simulation of the Fate and Transport of Tetrachloroethylene (PCE).

Terrace flow and transport model was developed using sound methods, and (2) the model is a reliable tool for understanding contaminant migration in the Tarawa Terrace region of Camp Lejeune. DOJ Ex. 3, Jones and Davis Report (DE-357-4) at 6-1.

III. LEGAL STANDARD

The admissibility of expert testimony is governed by Rule 702 of the Federal Rules of Evidence. Rule 702 allows a witness qualified by knowledge, skill, experience, training, or education to testify if the witness’s “testimony is based on sufficient facts or data,” the witness’s “testimony is the product of reliable principles and methods,” and the “opinion reflects a reliable application of the principles and methods to the facts of the case.” *See* Fed. R. Evid. 702(a)-(d). This Court and the Fourth Circuit has “distilled Rule 702’s requirements into three crucial inquiries: (1) whether the proposed expert witness is qualified; (2) whether the proposed testimony is relevant; and (3) whether the proposed testimony is reliable.” *Dew*, 2024 WL 4349883, at *2 (citing *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 141 (1990)); *Daubert v. Merrell Dow Pharms, Inc.*, 509 U.S. 579, 589 (1993); *United States v. Forrest*, 429 F.3d 73, 80 (4th Cir. 2005).

While there is no definitive checklist or test to assess reliability, factors that often guide the court’s reliability analysis include: (1) whether a theory or technique can be (or has been) tested; (2) whether it has been subjected to peer review and publication; (3) its potential rate of error; (4) whether standards exist to control the technique’s operation; and (5) the degree of acceptance of the methodology within the relevant scientific community. *Daubert*, 509 U.S. at 593-94; *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 138 (1999); *Nix v. Chemours Co. FC*, No. 7:17-CV-189-D, 7:17-CV-197-D, 7:17-CV-201-D, 2023 WL 6471690, at *7 (E.D.N.C. Oct. 4, 2023). Ultimately, in determining “whether proffered testimony is sufficiently reliable, the court has broad latitude to consider whatever factors bearing on validity that the court finds to be useful; the particular factors will depend upon the unique circumstances of the expert testimony involved.”

Westberry v. Gislaved Gummi AB, 178 F.3d 257, 261 (4th Cir. 1999). “[R]ejection of expert testimony is the exception rather than the rule.” *Gillis v. Murphy-Brown, LLC*, No. 7:14-CV-185-BR, 2018 WL 5284607, at *2 (E.D.N.C. Oct. 24, 2018) (quoting Fed. R. Evid. 702 Advisory Comm. Notes (2000 Amendments) and noting that opinions should not be excluded “merely because they are impeachable”).

IV. ARGUMENT

As is set out in detail in both their opening and rebuttal reports, Dr. Jones and Mr. Davis have a very specific role in this case: to test the reliability of the Tarawa Terrace flow and transport model via a post-audit analysis. The Government now moves to exclude their conclusion—that the post-audit demonstrates the model is sound and reliable—not based on the reliability of the post-audit methodology, its acceptance in the scientific community, the experts’ application of it, or their interpretation of the results, but solely because they believe Dr. Jones and Mr. Davis should have spent more time reading certain documents. The Government does not point to any industry standard or authority to support its position and, importantly, it does not identify a single let alone critical “fact or data” in these other ATSDR chapters it believes was not covered in the chapters Dr. Jones and Mr. Davis reviewed. Instead, a review of the record demonstrates that Dr. Jones and Mr. Davis’s opinions regarding the reliability and soundness of the flow and transport model meet Rule 702’s admissibility requirements. Any criticisms the Government has about the documents reviewed is a subject for cross examination, not a basis for exclusion. The Court should deny the motion.

The Government does not challenge Dr. Jones and Mr. Davis’s qualifications or the relevance of their testimony; however, because the PLG must demonstrate the proffered testimony meets Rule 702’s admissibility requirements by a preponderance of the evidence, Plaintiffs will

address each element in turn. Fed. R. Evid. 702; *see also*, *Dew v. E.I. du Pont de Nemours and Company*, No. 5:18-CV-73-D, 2024 WL 4349883, at *2 (E.D.N.C. Sept. 30, 2024) (unpublished).

A. Dr. Jones and Mr. Davis are Qualified to Offer Opinions Regarding the Reliability and Soundness of ATSDR's Tarawa Terrace Model.

The first step in the Court's Rule 702 admissibility inquiry is to determine if the expert is qualified to testify. Qualification can be based on "knowledge, skill, experience, training, or education" and should be assessed "in reference to the matter to which the witness seeks to testify." *Dew*, 2024 WL 4349883, at *3 (citing *Daubert*, 509 U.S. at 591–93). The Government does not challenge Dr. Jones and Mr. Davis's qualifications; however, even if it did, the record demonstrates that both are amply qualified to testify about the design, application, and evaluation of groundwater flow and contaminant fate and transport models.

Dr. Norman Jones has over three decades of experience in civil and environmental engineering. He has a Ph.D. in civil engineering from the University of Texas and currently serves as a professor and Chair of the Department of Civil and Construction Engineering at Brigham Young University, where he has taught courses on computer programming, soil mechanics, and groundwater flow and transport modeling. DOJ Ex. 3, Jones and Davis Report (DE-357-4) at 8-1 to 8-2, Report Exhibit 2. Dr. Jones is the original developer of the Groundwater Modeling System (GMS) software, "which is a graphical user interface for MODFLOW and MT3DMS and is used by thousands of organizations all over the world." *Id.* He has also authored 179 technical publications, including 88 peer-reviewed journal articles, and received awards from both the American Society of Civil Engineers and the National Groundwater Association for his work. *Id.* The Court should find Dr. Jones qualified to testify.

Mr. R. Jeffrey Davis is a licensed professional engineer and certified ground water professional (CGWP) with nearly 30 years of experience in civil and environmental engineering,

hydrogeology, groundwater fate and transport modeling, and software and model development. DOJ Ex. 3, Jones and Davis Report (DE-357-4) at 8-1. He has both undergraduate and graduate degrees from Brigham Young University in civil engineering and currently serves on the board of directors for the National Ground Water Association (NGWA). *Id.* Mr. Davis has worked on hundreds of groundwater modeling projects for a wide range of industries, including agriculture, mining, oil and gas, and hydraulic fracturing, and has served as an expert witness in groundwater contamination litigation. DOJ Ex. 2, Davis Dep. (DE-357-3) at 54:6-10; DOJ Ex. 3, Jones and Davis Report (DE-357-4) at 8-1, Report Exhibit 1. He is also regularly invited to participate on panels discussing groundwater, water supply, and water contamination issues. *Id.* Like Dr. Jones, Mr. Davis is qualified to testify.

B. Dr. Jones and Mr. Davis's Opinions Regarding the Reliability and Soundness of ATSDR's Tarawa Terrace Model are Relevant.

The second step in the Court's Rule 702 admissibility inquiry is to determine if the testimony is relevant. To be relevant, the proposed expert testimony must "help the trier of fact to understand the evidence or to determine a fact in issue." Fed. R. Evid. 702(a). "A key 'aspect of relevancy ... is whether expert testimony proffered in the case is sufficiently tied to the facts of the case that it will aid the jury in resolving a factual dispute.'" *United States v. Ferncreek Cardiology, P.A.*, No. 5:17-CV-616-FL, at *6 (E.D.N.C., Mar. 20, 2025) (quoting *Daubert*, 509 U.S. at 591).

The Government does not challenge the relevance of Dr. Jones and Mr. Davis's testimony regarding the reliability and soundness of ATSDR's MODFLOW and MT3DMS models for Tarawa Terrace. More important, this testimony will help the Court both understand evidence in this case and resolve factual disputes. As this Court has recognized, "this case is about water," and the "court must understand the chemicals in the water at Camp Lejeune during the operative period." DE-247 at 2. The PLG relies on the results of ATSDR's Tarawa Terrace model to establish

PCE concentrations in that area of the base and the Government is challenging its admissibility on the grounds that it is “unreliable and scientifically invalid.” DE-368 at 16. Dr. Jones and Mr. Davis’s post-audit analysis relates to the reliability of the model and will undoubtedly help the Court to understand and resolve this issue. Therefore, the Court should find the testimony relevant.

C. Dr. Jones and Mr. Davis’s Opinions Regarding the Reliability and Soundness of ATSDR’s Tarawa Terrace Model are Reliable and Properly Supported.

The Government’s motion focuses on the reliability of Dr. Jones and Mr. Davis’s opinions regarding the accuracy and soundness of the model, arguing primarily that the opinions are not based on sufficient facts and data and sometimes that they failed to employ a reliable methodology. The Government’s argument misses the mark for two reasons. First, it ignores that the post-audit is the primary basis for their opinion and fails to discuss the post-audit methodology entirely. Second, it fails to present any evidence that Dr. Jones and Mr. Davis’s quantitative and qualitative analysis of the extended ATSDR model was missing facts and data.

1. Dr. Jones and Mr. Davis’s opinions are based primarily on their post-audit, the reliability of which the Government does not challenge.

The Government’s motion misses the boat entirely by ignoring the post-audit itself. As is evident from their reports, Dr. Jones and Mr. Davis were hired to conduct a post-audit – not to provide an opinion of ATSDR’s work based on a review of the chapter reports.¹⁰ And the Government makes no argument that the methodology of the post-audit is unreliable under the *Daubert* factors or otherwise. Instead, relying on a single answer taken out of context in deposition, the Government contends that Dr. Jones and Mr. Davis’s “opinion testimony regarding the accuracy and soundness of ATSDR’s methodology is based *solely* on their reading of a small

¹⁰ Ex DOJ Ex. 3, Jones and Davis Report (DE-357-4) at vi; DOJ Ex. 4, Jones and Davis Rebuttal Report (DE-357-5) at 2-1.

subset of ATSDR's reports." DE 357 at 7 (emphasis added). That is false. Dr. Jones and Mr. Davis never "disclaimed that their post-audit was the basis for their opinion that the ATSDR model was reliable," which is why the Government does not include a citation to the record for that assertion. Quite the opposite, Mr. Davis identified the post-audit as a way in which they evaluated ATSDR's methodology and as a basis for opinions regarding the model's reliability throughout his deposition. *See* DOJ Ex. 2, Davis Dep. (DE-357-3) at 269:24-270:5, 281:2-22, 282:14-19, 282:20-283:6.

The reality is that Dr. Jones and Mr. Davis's opinion testimony regarding the reliability and soundness of ATSDR's methodology is based primarily on their post-audit,¹¹ the reliability of which the Government does not challenge. But even if the Government had challenged the reliability of the post-audit methodology—which it does not—consideration of the *Daubert* factors supports reliability of these opinions.

A post-audit is an accepted method used "to test prediction accuracy." Ex. , Excerpt from Hill and Tiedman, *Effective Groundwater Model Calibration* (2007), at 262. The technique has been subject to peer review, and there are industry guidelines that inform the assessment's application, which Dr. Jones and Mr. Davis adhered to.¹² Indeed, comparing a model's simulated

¹¹ This is evident in their reports—*see, e.g.*, DOJ Ex. 4, Jones and Davis Rebuttal Report (DE-357-5) at 1-1 (identifying the post-audit as a basis for their opinions)—and in their deposition testimony. *See, e.g.*, DOJ Ex. 2, Davis Dep. (DE-357-3) at 258:7-9 (stating the post-audit strengthened the validity of the model), 279:1-3 (explaining that based on the post-audit, it is his opinion the model effectively modeled month-by-month concentrations), 281:2-22 (confirming that based on the post-audit, it is his opinion the model is reliable for determining the migration of the PCE contamination); 281:23-282:19 (explaining that based on the results of the post-audit, it is his opinion that the model can reliably determine monthly PCE concentrations); DOJ Ex. 5, Jones Dep. (DE-357-6) at 116:18-117:13 (explaining that the results of the post-audit supported the accuracy and soundness of the model).

¹² *See, e.g.*, Ex. 13, Konikow, *Predictive Accuracy of a Ground-Water Model – Lessons from a Postaudit*. Ground Water, 24 (1986) 173-1984; Ex. 4, Anderson and Woessner, *The Role of the*

values to field observed values to evaluate a model's accuracy is discussed in textbooks and is a common practice in the scientific community.¹³ Dr. Jones and Mr. Davis's technique is carefully documented and can and has been tested by the Government's experts.¹⁴ They have also calculated and identified the mean error (48 micrograms per liter) for their post-audit results—meaning the average difference between the extended model's simulated PCE concentration and the measured PCE concentration was only 48 µg/L.¹⁵ This demonstrates a well-balanced fit and supports the reliability of the post-audit results. DOJ Ex. 4, Jones and Davis Rebuttal Report (DE-357-5), at 3-5. Based on the record, the Court should find that the post-audit satisfies every *Daubert* factor.

In arguing that Dr. Jones and Mr. Davis did not test ATSDR's methods, the Government again falls short. DE 357 at 11. The post-audit itself is a test of the ATSDR's model – it tests how accurate the model predictions are by running the model for thirteen additional years and comparing the model results to the measured remediation results. The argument that Dr. Jones and Mr. Davis failed to evaluate the input parameters underlying the ATSDR model and simply used input parameters from the PLG is similarly misguided. DE 357 at 11-13. The input parameters Dr. Jones and Mr. Davis used were not selected by the PLG – the model input files used for the post-

Postaudit in Model Validation. *Advances in Water Resources* 15 (1992) 167-173; Ex. 2, ASTM International D5490-93: Standard Guide for Comparing Ground-Water Flow Model Simulations to Site-Specific Information (2002), at 1; DOJ Ex. 5, Jones Dep. (DE-357-6) at 232:20-233:4 (Dr. Jones testifying that he has performed post-audits comparing a model's simulated values to field observed values to evaluate the model's accuracy countless times).

¹³ Ex. 6, Reilly and Harbaugh, *Guidelines for Evaluating Ground-Water Flow Models*, U.S. Geological Survey, Scientific Investigations Report 2004-5038 (2004), at 23; Ex. 3, Excerpt from Anderson and Woessner, *Applied Groundwater Modeling: Simulation of Flow and Advective Transport* (2015), at CL_PLG-EXPERT_ARAL_0000000452-459.

¹⁴ DOJ Ex. 4, Jones and Davis Rebuttal Report (DE-357-5) at 3-10 to 3-13.

¹⁵ DOJ Ex. 4, Jones and Davis Rebuttal Report (DE-357-5) at 3-5. Dr. Jones also calculated and provided the geometric bias for the post-audit results in deposition. DOJ Ex. 5, Jones Dep. (DE-357-6) at 283:1-10 (2.1 for all observations, and only 1.2 when limited to observations above 5 micrograms per liter).

audit were the ATSDR's original model input files produced by the Government in this litigation. The input parameters included in those files are the parameters from the original model. *See* Ex. 8, Jones and Davis Revised Materials Considered List at 6-7 (identifying the ATSDR model input files, materials 99-123, by bates number). Using the same input parameters ensures the post-audit is testing ATSDR's actual model, not a different model.

The Government's reliance on *Sommerville v. Union Carbide Corp.*, No. 2:19-CV-00878, 2024 WL 1204094 (S.D. W. Va. Mar. 20, 2024) further highlights its misconceptions about the nature and function of the post-audit. *Sommerville* did not involve an expert tasked with *testing* an existing model. It involved an expert who *built* an air dispersion model to prove exposure levels using, among other problematic and inappropriate data, "patently unreliable" worst-case emissions estimates reported in regulatory documents, non-representative meteorological data, and inaccurate operating scenarios. *Id.* at 11-19. The *Sommerville* expert's failure to make any attempt to assess the appropriateness of the data he put into his model is not "analogous" to the recognized technical exercise Dr. Jones and Mr. Davis performed in this case.

A proper post-audit that assesses a model's accuracy by comparing the simulated values to additional observation data requires the modeler to use the original model, including the original input parameters.¹⁶ When done this way, the degree of correspondence between simulated and observed values found via the post-audit reflects the appropriateness of the model's input parameters and assumptions. If there was no correspondence between simulated and observed values, that would indicate flaws in the original model. However, as Dr. Jones explained in

¹⁶ *See* DOJ Ex. 5, Jones Dep. (DE-357-6) at 273:1-9 ("the model inputs would be extended over a new period. We would not change anything in the original models, other than extending it, and then run the simulations and compare the predicted results of the extended model with any new field observed value data that were available, is the general process.).

deposition, the post-audit showed good agreement between the two, which is evidence that the original model is a reliable tool developed using sound methods. DOJ Ex. 5, Jones Dep. (DE-357-6) at 113:10-117:13. The post-audit results supporting their opinions regarding the reliability and soundness of the model are presented in a series of tables, plots, and graphs included with the report, none of which the Government contests or even discusses.¹⁷ Significantly, the Government does not contest Dr. Jones and Mr. Davis's opinion that the post-audit results demonstrate that the ATSDR's model "reasonably captured the key behaviors of the PCE plume." DOJ Ex. 3, Jones and Davis Report (DE-357-4) at 6-1.

2. The Government fails to present any evidence that Dr. Jones and Mr. Davis's quantitative and qualitative analyses of the extended ATSDR model were missing facts and data.

The Government's primary criticism regarding Dr. Jones and Mr. Davis's opinions concerns the documents they reviewed to perform their post-audit. Without identifying any supportive industry practice or a single "fact or data" it believes is missing from Dr. Jones and Mr. Davis's extended model, the Government asks this Court to supplant the judgment of two engineers with a combined sixty years of flow and transport modeling experience with that of its lawyers. The Court should reject the invitation. Disagreements over the universe of documents reviewed is a subject for cross examination, not exclusion. *SAS Institute, Inc. v. World Programming Ltd.*, 125 F.Supp.3d 579, 590 (E.D.N.C. 2015), *aff'd* 874 F.3d 370 (4th Cir. 2017).

To support its position, the Government cites *E.E.O.C. v. Freeman*, 778 F.3d 463 (4th Cir. 2015) and *Yates v. Ford Motor Co.*, 113 F.Supp.3d 841, 858–860 (E.D.N.C. 2015) – two cases with facts that are in no way analogous to the circumstances here. In *Freeman*, the Fourth Circuit

¹⁷ See Ex DOJ Ex. 3, Jones and Davis Report (DE-357-4) Figures and Tables appendix. DOJ Ex. 4, Jones and Davis Rebuttal Report (DE-357-5), Appendix A, presents updated versions of this data.

upheld the district court’s decision to exclude an expert’s statistical analysis based on the “alarming number of errors and analytical fallacies in Murphy’s reports, making it impossible to rely on any of his conclusions” and the “‘mind-boggling’ number of errors and unexplained discrepancies” in the expert’s database. 778 F.3d 463, 466-67. The expert excluded “hundreds, if not thousands” of datapoints in his statistical analysis, failed to code data correctly, and managed to introduce new errors in each attempt to revise his report. *Id.* Here, the Government’s motion does not identify any data missing from Dr. Jones and Mr. Davis’s extended model, it does not discuss a single error let alone critical errors in their statistical analysis, nor does it identify any “facts and data” pertinent to the post-audit that Dr. Jones and Mr. Davis did not encounter in Chapters A, C, and F of the ATSDR report.¹⁸ Dr. Jones explained in deposition his reasoning for focusing on Chapters A, C, and F of ATSDR’s Tarawa Terrace model, and testified that those chapters provided good exposure to the methods and processes used. DOJ Ex. 5, Jones Dep. (DE-357-6) at 87:18-89:6. The Court should not substitute its or the Government’s judgment “for that of the expert as to what is sufficient evidence to inform his experiential conclusion.” *SAS Institute, Inc. v. World Programming Ltd.*, 125 F. Supp.3d 579, 590.

The Government’s reliance on *Yates v. Ford Motor Co.*, 113 F.Supp.3d 841, 858–860 (E.D.N.C. 2015) for its argument that Dr. Jones and Mr. Davis should have discussed the NRC Report and the Navy’s 2008 letter in their report is similarly misplaced. *Yates* concerned the reliability of a plaintiff’s general and specific causation expert opinions in a case involving exposure to asbestos. There, one of the plaintiff’s causation experts with an opinion based in part

¹⁸ The operative results of Dr. Jones and Mr. Davis’s quantitative and qualitative analysis is in their rebuttal report. DOJ Ex. 4, Jones and Davis Rebuttal Report (DE-357-5). The Government’s expert identified minor errors in Dr. Jones and Mr. Davis’s opening report, all of which were corrected and addressed in their rebuttal report served January 14, 2025. The Government’s motion does not identify or discuss a single remaining error.

on an assessment of epidemiological studies failed to provide a credible explanation as to why he excluded approximately 30 epidemiological studies that found no association between brake work and mesothelioma. *Id.* at 857-860.

Here, the NRC Report and the Navy's letter are merely critiques of ATSDR's work – they do not provide additional facts or data, and they are not “contrary scientific literature” similar to the peer-reviewed published epidemiological studies the *Yates* court determined plaintiff's causation expert should have considered. The NRC Report, for example, is an incomplete review of the ATSDR's model,¹⁹ and it contains numerous errors and inaccuracies regarding the hydrogeology of Camp Lejeune and the specifics of ATSDR's modeling work. Ex. 15, Expert Report of Morris Maslia at 101-02 & App. M (ATSDR Response to NRC Report). More importantly, the Government does not present any evidence demonstrating that the NRC report and Navy letter and the critiques in them are the type of facts and data an engineer would rely on to extend a model and prepare a quantitative and qualitative assessment of its performance. *See* Fed. R. Evid. 703. Given the nature and function of a post-audit, there is no conceivable role for these documents to play in Dr. Jones and Mr. Davis's report. Even if there was, their import is a subject for cross examination. *See Bresler v. Wilmington Trust Company*, 855 F.3d 178, 195 (4th Cir. 2017) (“questions regarding the factual underpinnings of the [expert witness'] opinion affect the weight and credibility of the witness' assessment, ‘not its admissibility.’”) (quoting *Structural Polymer Grp. v. Zoltek Corp.*, 543 F.3d 987, 997 (8th Cir. 2008)); Fed. R. Evid. 702 Advisory Comm. Notes (2023 Amendments) (“[I]f the court finds it more likely than not that an expert has

¹⁹ Ex. 14, 2/18/2009 Clement email to Maslia, at ATSDR_WATERMODELING_01-0000891040. For example, Dr. Clement did not review Chapter I regarding sensitivity and uncertainty analyses performed for Tarawa Terrace before releasing the NRC Report. *Id.*

a sufficient basis to support an opinion, the fact that the expert has not read every single study that exists will raise a question of weight and not admissibility.”)

Contrary to the Government’s assertion, *SAS Institute, Inc. v. World Programming Ltd.* is instructive. In *SAS*, the defendant criticized the plaintiff’s computer science expert for failing to base his opinion on a larger universe of data, which should have also included an independent investigation of certain software. In rejecting the defendant’s reliance on *E.E.O.C. v. Freeman*, the court’s analysis demonstrates there is no draconian rule that all relevant evidence must be considered. Instead, it depends on the nature of the testimony and whether the expert provided a reasoned basis for the evidence’s exclusion. 125 F. Supp.3d at 590 (citing *Cooper v. Smith & Nephew, Inc.*, 259 F.3d 194 (4th Cir. 2001)). Materials considered by an expert are reviewed with the understanding that the court should not substitute its judgment for that of the expert as to what is sufficient evidence to inform conclusions based on experience. *SAS Institute, Inc.*, 125 F. Supp.3d at 590.

In this case, Dr. Jones and Mr. Davis’s opinions regarding the reliability and soundness of the ATSDR’s model are based on the results of a technical exercise and informed by their extensive experience developing, applying, and evaluating groundwater flow and contaminant transport models. Dr. Jones provided a reasoned basis as to why they focused on Chapters A, C, and F of the ATSDR reports, and performed only a high-level review of the other chapters. Further, despite questioning both experts about the general concerns raised in the NRC report and the Navy’s letter, the Government fails to identify any specific “fact and data” in either document that it contends contradicts an opinion based primarily on a post-audit analysis. Viewed holistically, the record demonstrates that Dr. Jones and Mr. Davis’s opinions regarding the reliability and soundness of

the model are sufficiently supported by the results of their post-audit. The Court should find the testimony reliable and, in turn, admissible.

V. CONCLUSION

For the foregoing reasons, the PLG respectfully requests the Court to deny Defendant's motion to exclude opinion testimony from Dr. Jones and Mr. Davis regarding the reliability and soundness of ATSDR's model for Tarawa Terrace.

[Signature page to follow.]

DATED this 4th day of June 2025.

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CERTIFICATE OF SERVICE

I, J. Edward Bell, III, hereby certify that the foregoing document was electronically filed on the Court's CM/ECF system on this date, and that all counsel of record will be served with notice of the said filing via the CM/ECF system.

This the 4th day of June 2025.

/s/ J. Edward Bell, III_____

J. Edward Bell, III